

IN THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently Amended) A wireless communication system including wireless units at least some of which are configured to perform data information transmission during a predetermined data communication period portion of a predetermined transmission frame period and to perform a distance measurement between particular wireless units during a ranging period portion of said predetermined transmission frame period separate from the data communication period portion, wherein, during the ranging period portion of said predetermined transmission frame period separate from the data communication period portion,

a first wireless unit ~~transmits~~ configured to perform data information transmission during the predetermined data communication period portion of the predetermined transmission frame period and to perform the distance measurement between particular wireless units during the ranging period portion of said predetermined transmission frame period separate from the data communication period portion is further configured to transmit a ranging signal to a second wireless unit,

said second wireless unit is configured to receive ~~receives~~ the ranging signal and responds thereto by transmitting a response signal to said first wireless unit after a lapse of a predetermined delay period after said second wireless unit receives the ranging signal, and

said first wireless unit includes a reception gate configure to prevent reception of signals for a predetermined masking time period during the ranging period portion having a predetermined duration necessary for masking reception of signals due to

reflection of waves from an unintended object and to permit reception of ~~receives~~ the response signal from the second wireless unit after the predetermined masking time period elapses ~~and measures~~ so as to then measure a distance between said first wireless unit and said second wireless unit according to an elapsed time measured from when said first wireless unit transmits the ranging signal until the first wireless unit receives the response signal from the second wireless unit after the predetermined masking time period elapses.

2. (Currently Amended) A wireless communication system including wireless units configured to perform data information transmission during a predetermined data communication period portion of a predetermined transmission frame period and to perform a distance measurement between particular wireless units during a ranging period portion of said predetermined transmission frame period separate from the data communication period portion, the wireless communication system comprising:

a local wireless unit including a ranging-signal transmission means for transmitting a ranging signal to a remotely located wireless unit in said wireless network during the ranging period portion of said predetermined transmission frame period separate from the data communication period portion of said predetermined transmission frame period;

means in the local wireless unit for blocking signal reception for a predetermined time duration determined to be sufficient to prevent reception of waves reflected from an unintended object and for permitting signal reception after the predetermined time duration has elapsed;

response-signal reception means in the local wireless unit for receiving a response signal from said remotely located wireless unit after the predetermined time duration has elapsed; and

distance measurement means in the local wireless unit for measuring a distance ~~therefrom~~ from the local wireless unit to said remotely located wireless unit according to an elapsed time from a moment-when the ranging signal was transmitted to a moment when the response signal was received by the local wireless unit.

Claims 3 and 4 (Canceled).

5. (Currently Amended) The wireless communication method according to claim ~~[[3]]~~6, wherein the ranging signal consists of a single pulse signal or of a plurality of pulse signals.

6. (Currently Amended) ~~The~~ A wireless communication method ~~according to claim 3~~ performing a distance measurement between at least two wireless units in a wireless network in which the wireless units exchange data information during a predetermined data communication period portion of a predetermined transmission frame period, the wireless communication method comprising the steps of:

transmitting a ranging signal from a local wireless unit to a remotely located wireless unit in said wireless network during the ranging period portion of said predetermined transmission frame period separate from the data communication period portion;

receiving a response signal from said remotely located wireless unit indicating receipt of the ranging signal by the remotely located wireless unit during the ranging period portion of said predetermined transmission frame period separate from the data communication period portion; and

measuring the distance from said local wireless unit to said remotely located wireless unit according to an elapsed time from a moment when the ranging signal is transmitted to a

moment when the response signal is received by the local wireless unit, wherein

said step of receiving the response signal from said remotely located wireless unit includes enabling a reception gate after a lapse of an image elimination period having a predetermined duration necessary for masking ~~an image~~ reception of signals due to reflection of waves from an unintended object.

7. (Currently Amended) A wireless communication device configured to perform data information communication during a predetermined data communication period portion of a predetermined transmission frame period and to provide a response to a ranging signal received from another wireless communication device during a ranging period portion of said predetermined transmission frame period separate from the data communication period portion, the ranging period portion of said predetermined transmission frame period including an initial portion containing a ranging period portion identifier, the wireless communication device further comprising:

means for detecting the ranging period portion identifier and for preventing processing of a response to a ranging signal for a predetermined masking period of time after detecting the ranging period portion identifier;

ranging signal reception means for receiving the ranging signal from the another wireless communication device during the ranging period portion of said predetermined transmission frame period; and

response signal processing means for processing the received ranging signal to generate a response signal to be transmitted after the predetermined masking period of time has elapsed; and

response signal transmission means for transmitting ~~[[a]]~~ the response signal during the ranging period portion of said predetermined transmission frame period indicating

reception of the ranging signal a predetermined time after receiving the ranging signal.

8. (Currently Amended) A wireless communication method for performing wireless data communication during a predetermined data communication period portion of a predetermined transmission frame period and for providing a response to a ranging signal received during a ranging period portion of said predetermined transmission frame period separate from the data communication period portion in a wireless network, the ranging period portion of said predetermined transmission frame period including an initial portion containing a ranging period portion identifier, the wireless communication method comprising the steps of:

detecting the ranging period based on receiving the identifier from a remotely located wireless unit at a local wireless unit and preventing processing of a response to any signal received for a predetermined masking period of time at the local wireless unit;

receiving the ranging signal from a the remotely located wireless unit of said wireless network during the ranging period portion of said predetermined transmission frame period separate from the data communication period portion; ~~and~~

processing the received ranging signal to generate a response signal to be transmitted, the processing occurring during the ranging period portion of said predetermined transmission frame period and after the predetermined masking period of time has elapsed;
and

transmitting a the generated response signal during the ranging period portion of said predetermined transmission frame period a predetermined time after receiving the ranging signal.

Claim 9 (Canceled).

10. (Previously Presented) The wireless communication method according to claim 8, wherein the response signal consisting of a single pulse signal or of a plurality of pulse signals.

11. (Previously presented) The wireless communication method according to claim 8, wherein the response signal consists of a sequence of a plurality of PN-coded pulse signals.

Claim 12 (Canceled).

13. (Currently Amended) A computer program stored in a computer readable storage medium in a computer-readable form and configured to cause a wireless unit in a wireless network to perform information transmission during a predetermined data communication period portion of a predetermined transmission frame period and to perform a distance measurement between wireless units in the wireless network during a ranging period portion of said predetermined transmission frame period separate from the data communication period portion, the computer program causing the distance measurement between wireless units in the wireless network during the ranging period portion of said predetermined transmission frame period separate from the data communication period portion by controlling the steps of:

performing an operation of transmitting a ranging signal from a first wireless unit to a specific wireless unit in said wireless network during the ranging period portion of said predetermined transmission frame period separate from the data communication period portion;

performing an operation of enabling a reception gate in the first wireless unit to

permit the first wireless unit to receive signals only after a lapse of an masking time period having a predetermined duration for preventing reception of signals due to reflection of waves from an unintended object;

performing an operation of receiving a response signal at first wireless unit from said specific wireless unit during the ranging period portion of said predetermined transmission frame period and after the lapse of the masking period, the response signal indicating receipt of the ranging signal by the specific wireless unit; and

performing an operation of measuring a distance from the first wireless unit to said specific wireless unit according to an elapsed time from a moment when the ranging signal is transmitted from the first wireless unit to a moment when the response signal is received at the first wireless unit.

14. (Currently Amended) A computer program stored in a computer readable storage medium in a computer-readable form and configured to cause a wireless network to perform wireless communication including data information transmission during a predetermined data communication period portion of a predetermined transmission frame period and to perform transmission of a ranging signal from one wireless unit in the wireless network to a receiving wireless unit during a ranging period portion of said predetermined transmission frame period separate from the data communication period portion, the ranging period portion of said predetermined transmission frame period including an initial portion containing a ranging period portion identifier, the computer program causing the receiving wireless unit to perform the steps of:

detecting the ranging period based on receiving the identifier from the one wireless unit at the receiving wireless unit and preventing processing of a response to any signal received for a predetermined masking period of time at the receiving wireless unit;

receiving the ranging signal from the one wireless unit of said wireless network at the receiving wireless unit during the ranging period portion of said predetermined transmission frame separate from the data communication period portion; ~~and~~

processing the received ranging signal to generate a response signal to be transmitted, the processing occurring during the ranging period portion of said predetermined transmission frame period and after the predetermined masking period of time has elapsed;
and

transmitting a the generated response signal from the receiving wireless unit ~~to the one terminal~~ indicating receipt of the ranging signal during the ranging period portion of said predetermined transmission frame period separate from the data communication period portion.

15. (Currently Amended) The wireless communication method according to claim [[3]] 6, wherein said response signal being received during the ranging period portion of said predetermined transmission frame period separate from the data communication period portion includes a lapse of a ranging delay time including a delay time caused in a signal processing in said remotely located wireless unit, in addition to a two-way propagation time of a pulse propagating between wireless units at a propagation velocity.

16 (Previously Presented) The wireless communication method according to claim 8, wherein said transmitting step of the response signal during the ranging period portion of said predetermined transmission frame period separate from the data communication period portion occurs after a lapse of a ranging delay time including a delay time caused in a signal processing in said remotely located wireless unit, in addition to a two-way propagation time of a pulse propagating between wireless units at a propagation velocity.